

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Joshi, et al.

Group Art Unit: 2822

Serial No.: 09/112,885

Examiner: J. Davis

Filed: July 9, 1998

In Response to Office Action

Dated: June 27, 2000

For: A Soft Metal Conductor And Method Of Making

Attorney Docket No.: Y0994-172AX (64,610-030)

Certificate of Mailing

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

Date: September 18, 2000

Assistant Commissioner
for Patents
Washington, D.C. 20231

DECLARATION OF RAJIV V. JOSHI UNDER 37 CFR § 1.131

I, RAJIV V. JOSHI, hereby declare that:

1. I am a co-inventor of the subject matter described and claimed in the above-identified patent application.

2. I hold the following degrees:

- Doctor of Engineering Science (1990), Columbia University, NY, NY
- Mechanical Engineering, Manufacturing Science (1981), Massachusetts Institute of Technology, Cambridge, MA
- M.S. (1979), Mechanical Engineering (FEM, CAD), University of Maine, Orono, ME
- B.S. (1977), Mechanical Engineering, Indian Institute of Technology, Bombay, India

3. My work experience is as follows:

1983 - present:

IBM, Research Staff Member, T.J. Watson Research Center

1981-83:

GTE, Technical Staff, GTE Research Laboratories

1979-81:

Massachusetts Institute of Technology, Research Assistant

4. I have received numerous awards including:

- IBM Master Inventor Award (1997)
- IBM Patent Portfolio Award (1997) for patents that are highly licensable and in products
- IBM Research Division Awards (1992 & 1994)
- 12th Plateau - IBM Invention Achievement Awards (1983-1996)

5. I am a named inventor on 23 U.S. patents.

6. I have reviewed U.S. Patent No. 5,281,854 to Wong (filed Nov. 16, 1992) and U.S. Patent No. 5,523,259 to Merchant, et al (filed Dec. 5, 1994).

7. That in the United States sometime prior to November 16, 1992, the Applicants conceived the idea for a method of making a metal conductor via plug for use in a semiconductor device comprising the step of depositing a first layer of said metal forming said via plug, said metal consisting of grains having grain sizes sufficiently large such that a substantially scratch-free surface on said via plug upon polishing in a subsequently conducted chemical mechanical polishing step is obtained.

8. That in the United States sometime prior to November 16, 1992, the Applicants practiced the method of making a metal conductor via plug for use in a semiconductor device comprising the step of depositing a first layer of said metal forming said via plug, said metal consisting of grains having grain sizes sufficiently large such that a substantially scratch-free surface on said via plug upon polishing in a subsequently conducted chemical mechanical polishing step is obtained.

9. That the accompanying photographs labeled Exhibits A,B,C & D are of the metal that consists of grains having grain sizes sufficiently large referred to in paragraph 8, above. The dates such photographs were produced (shown on top of the photographs) are May 24, 1991, May 7, 1992 and July 28, 1992.

10. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statement may jeopardize the validity of the application of any patent issued therein.

Further deponent sayeth not.

Rajiv V. Joshi
Rajiv V. Joshi

Subscribed and sworn to before me this 14th
day of September, 2000.

Nichelle Parra
Notary Public

NICHILLE PARRA
Notary Public, State of New York
No. 01PAS009349
Qualified in Dutchess County
Commission Expires December 8, 2001

County of _____
State of _____
My Commission Expires: _____

(NOTARY SEAL)

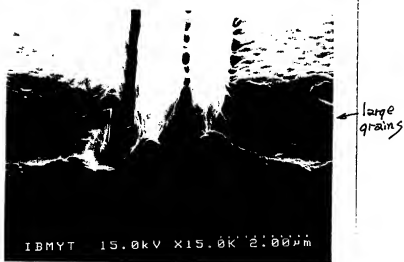
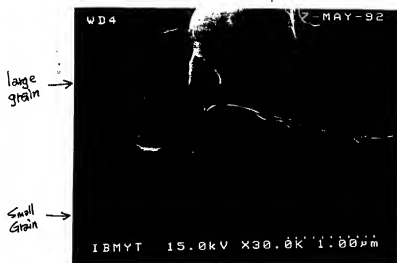
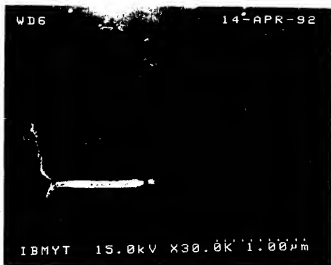


Exhibit A

large
grains

small
grains



large
grains



Exhibit B



Exhibit D